

SECTOR 6

COASTS OF PORTUGAL AND SPAIN—CABO DE SAO VICENTE TO CABO TRAFALGAR

Plan.—This sector describes the SW coast of Portugal and Spain between Cabo de Sao Vicente and Cabo Trafalgar. The descriptive sequence is from the NW to SE.

General Remarks

6.1 The coastal area between Cabo de Sao Vicente and Cabo Trafalgar, 153 miles ESE, is generally low and sandy, with the exception of the land in the vicinity of the former cape, which is prominent from seaward. The mouth of the Rio Guadiana (37°11'N., 7°25'W.) defines the border between Portugal and Spain.

Cadiz and Huelva are the only ports of any major commercial importance to ocean-going traffic, but several other smaller ports are situated along this stretch of coast. Cadiz is the only suitable main port of refuge, the other ports being obstructed by bars over which dangerous seas break during stormy weather, rendering them impassable.

The shoals, which extend about 15 miles WSW from Cabo Trafalgar, are the only offshore dangers. The only other dangers, which might be encountered, lie close inshore and nowhere do they extend more than 3 miles from the general line of the coast.

Caution.—From the April 15 to July 15, vessels should give the coast between Quarteira and the Rio Guadiana a berth of at least 5.5 miles. From the July 15 to September 15, vessels should give the coast between Olhao and the Rio Guadiana a berth of at least 3.5 miles. This is to avoid the fishing nets which extend seaward from the shore in places along this stretch of coast. Vessels are warned not to navigate through them.

The approaches to Faro, Olhao, and the Rio Guadiana are generally net-free.

Fishing nets for the tunny fishery are laid during the season off various points between Rio Guadiana and Tarifa. Vessels should stay at least 8 miles from the coast and exercise caution when entering or leaving ports in this area. It was reported (1985) that, due to a decline in tunny fishing, many of these nets had been permanently removed.

Submarines frequently exercise offshore in the waters described within this sector.

Cabo de Sao Vicente to Cabo de Santa Maria

6.2 Cabo de Sao Vicente (37°01'N., 9°00'W.), 53m high, is the SW extremity of Portugal and consists of a steep, rocky mass. The W side of this cape is broken by numerous caves and when the sea breaks into them, the noise produced can be heard for a considerable distance offshore. Gigante, a high and isolated rock, lies close off the cape and is prominent.

A main light is shown from a tower attached to a conspicuous convent, 28m high, standing on the cape.

The currents in the vicinity of the cape generally set strongly towards the land and have a tendency to set toward the cape. The S currents predominate, but N currents may be encountered during SW gales.



Cabo de San Vicente Light

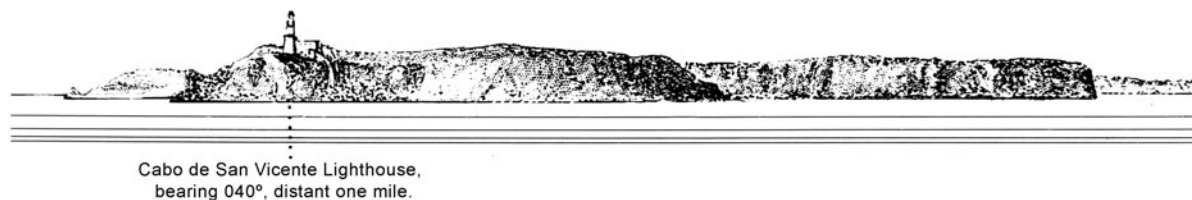
Caution.—Fishing vessels frequently anchor in the vicinity of the cape.

A local magnetic anomaly has been reported within 0.8 mile of Cabo de Sao Vicente.

Overfalls have been occasionally reported within 3 miles of the cape.

An IMO-adopted Traffic Separation Scheme, the limits of which are shown on the chart, lies up to 14 miles SW of Cabo de Sao Vicente.

6.3 Ponta de Sagres (36°59'N., 8°57'W.), a steep and rocky headland, projects 0.7 mile from the general line of the coast, 3 miles SE of Cabo de Sao Vicente. This point, 36m high, is inaccessible on all sides except at the isthmus which joins it to the mainland. A light is shown from a prominent tower with a dwelling, 13m high, standing on the headland.



Cabo de Sao Vicente



Ponta de Sagres Light

Enseada de Belixe, entered between the cape and the headland, is a small bay bordered by high, steep cliffs. During offshore winds, anchorage can be obtained, in a depth of 14m, 0.3 mile offshore, at its W side. A fort stands at the N corner of the bay.

Enseada de Sagres lies between Ponta de Sagres and Ponta da Atalaia, 1 mile NE. Temporary anchorage can be obtained, in a depth of 13m, sand, during the summer with offshore winds, within this bay. The village of Sagres stands at its head.

Caution.—Several submarine cables extend seaward from a point on the shore 8.5 miles NE of Ponta da Atalaia and may best be seen on the chart.

6.4 Ponta da Piedade (37°05'N., 8°40'W.) is located 12.5 miles ENE of Ponta da Atalaia. This point slopes gently towards the sea, then falls away abruptly near its extremity. Several above-water rocks lie close off its E side. A light is shown from a tower on a dwelling, 12m high, standing on the point.



Ponta da Piedade Light

Baia de Lagos (37°06'N., 8°37'W.), entered between Ponta da Piedade and Ponta do Facho, 5 miles ENE, is well-sheltered from W and N winds. There are depths in the entrance in excess of 20m, but shoals lie towards the head of the bay and extend up to 0.3 mile offshore. Lagos, a small harbor, lies on the W shore of the bay, at the mouth of the Rio Bensafirim. It is protected by breakwaters and used by small craft with local knowledge. Dangerous wrecks lie about 0.5 mile SE and 1.8 miles ESE of the river mouth. A conspicuous hotel stands 0.5 mile SSW of the river mouth. Vessels can obtain anchorage, in a depth of 16m, good holding ground, about 0.8 mile E of the harbor entrance.

Rio de Alvor flows into Baia de Lagos, 3 miles NE of Lagos; a prominent fort stands on the coast, 0.7 mile E of the river mouth. The river is entered through a channel dredged to 2.5m between two breakwaters. Small craft, with local knowledge,

can enter at HW and reach the village of Alvor, 1.3 miles above the entrance.

6.5 Portimao (37°08'N., 8°32'W.), a small port and fishing center, lies within the mouth of the Rio Arade, 6.5 miles E of Lagos.

Tides—Currents.—Tides rise about 3.5m at springs and 2.7m at neaps.

Depths—Limitations.—The harbor facilities include an old quay, 150m long, with a depth of 5m alongside, which is used by coasters and naval vessels; a basin for fishing vessels, which has 400m of total berthing space, with depths of 2 to 5m alongside; and a new commercial quay, 300m long, with a depth of 10m alongside.

Generally, vessels up to 150m in length and 7.9m draft can be accommodated. It was reported (1991) that development was being carried out in order to permit vessels of up to 9m draft to be handled in the port.

Aspect.—The town stands on the W bank of the river, 1.5 miles above the entrance. The river is entered between Forte Santa Catarina and Ponta do Altar, 0.8 mile SE. The mouth is protected by breakwaters which form an entrance, 250m wide. A lighted range indicates the entrance fairway, which is about 90m wide. A light is shown from a tower with a dwelling, 10m high, standing on Ponta do Altar and a signal station is situated close to it. A prominent fort stands on the E side of the river, 0.8 mile N of the light. Two prominent hotels, one surmounted by a television mast, stand on the W side of the entrance, 1.3 miles NW of the light.

Pilotage.—Pilotage is compulsory. Pilots can be contacted on VHF channel 14 or 16 and board about 1 mile S of the head of the W breakwater.

Anchorage.—Vessels can anchor, in a depth of 7m, about 0.5 mile W of the entrance or, in a depth of 15m, about 1 mile WSW of Ponta do Altar.

6.6 Ponta de Alfanzina (37°05'N., 8°26'W.) is located 4.5 miles ESE of the entrance to Portimao. The coast between is rocky and is marked by a few small beaches. A light is shown from a tower, 21m high, standing on the point.



Alfanzina Light

A prominent tower stands 1 mile ESE of the entrance to Portimao; a village, with a prominent fort, stands 1.5 miles farther ESE. A submarine pipeline extends 0.8 mile SSW from a point on the shore, 1.7 miles WNW of Ponta de Alfanzina.

Vilamoura (37°04'N., 8°07'W.), an extensive marina, is situated 15.5 miles E of Ponta de Alfanzina. Armacao de Pera, Albufeira, and Olhos de Agua are resort villages standing along the shores of bays lying between the point and the marina. Small coasters, with local knowledge, may anchor off these villages during offshore winds. Numerous high-rise buildings

and prominent hotels are situated along the shores of the bays. An isolated rocky patch, with a depth of 26m, lies about 9.5 miles SW of Vilamoura.

The resort village of Quarteira is situated 0.8 mile ESE of Vilamoura. The shore between is backed by conspicuous hotels and high-rise buildings.

Cabo de Santa Maria (36°58'N., 7°52'W.) is located 7 miles SE of Quarteira. The coast in the vicinity of the cape is formed by a chain of low, sandy, and narrow islands. Between this chain of islands and the mainland there are extensive sand banks, which intersected by narrow channels leading to the small ports of Faro, Olhao, and Tavira. High ground stands behind the coast in this vicinity.

A light is shown from a tower, with a dwelling, 45m high, standing on the island of Ilha de Culatra, 2 miles ENE of Cabo de Santa Maria.

Caution.—Vessels navigating in the vicinity of Cabo de Santa Maria should not approach the coast at night or in thick weather, because shoal banks extends up to 0.5 mile S of the low islands.



Cabo de Santa Maria Light

Cabo de Santa Maria to the Ria de Huelva

6.7 The Ria Formosa (36°59'N., 7°53'W.) is an extensive marshy estuary fronted by the low and sandy islets which extend NW and NE of Cabo de Santa Maria. Barra Nova de Faro-Olhao, the principal entrance channel, leads between the islands of Ilha da Barreta and Ilha de Culatra, close E. Its entrance, indicated by a lighted range, is protected by breakwaters. Within the entrance this channel divides, with one branch leading NW to Faro and the other NE to Olhao. Depths on the bar are subject to constant change. It was reported (1989) that there were depths of 3 to 4m at LW and 6 to 8m at HW.

Pilotage.—Pilotage is compulsory and is generally carried out only by day. Vessels should send an ETA at least 6 hours in advance. Pilots can be contacted by VHF and usually board about 1 mile S of the entrance.

Anchorage.—Vessels can obtain anchorage, in a depth of 42m, about 1 mile S of Cabo de Santa Maria Light. Vessels occasionally discharge cargo into lighters at this anchorage. Small craft may obtain anchorage, in a depth of 11m, about 1.5 miles E of the light or, in a depth of 10m, 0.8 mile SE of the light.

Caution.—Strong currents may be encountered over the bar and can attain rates up to 7 knots at springs.

6.8 Faro (37°01'N., 7°55'W.) (World Port Index No. 38030), a small commercial port, is situated on the W side of the estuary, about 4 miles above Cabo de Santa Maria. The town can be identified by two white steeples of the churches and by a prominent white chapel, which stands on a hill, close E of it. There is a quay, 200m long, with a depth of 7.9m alongside and a tanker LPG berth, 110m long, with a depth of 6.1m alongside.

Vessels up to with a maximum length of 120m and a maximum draft of 6.1m can be accommodated; however, vessels over 110m in length should obtain prior authorization to enter the harbor.

Pilotage is compulsory. Arrivals and departures are dependent on the tides. Vessels should provide an ETA at least 24 hours in advance. The pilots can be reached on VHF channel 14 or 16 and board 1 mile S of the moles.

Olhao (37°01'N., 7°50'W.), a small harbor, is situated on the E side of the estuary, 4.5 miles E of Faro. A main basin has depths of 2 to 2.8m. The harbor is used exclusively by fishing vessels, pleasure craft, and local ferries, but is closed to commercial shipping. The pilot station at Faro accepts requests for Olhao.

6.9 Tavira (37°08'N., 7°39'W.), a small harbor, is situated at the mouth of the Rio Gilao, 11 miles NE of Olhao. The town stands on both banks of the river, which is spanned by a bridge, 1 mile above the entrance. The entrance fairway passes between the island of Ilha de Tavira and an unnamed spit close NE. It is indicated by a lighted range and protected by breakwaters. Small craft and fishing vessels can reach the harbor at HW.

Caution.—It has been reported (1996) that the bar could not be crossed due to silting.

The coast between Tavira and the Rio Guadiana, 6.5 miles ENE, is low and sandy, with numerous tourist complexes. Monte Gordo, standing 2 miles W of the river mouth, is a town with several high-rise buildings. A hotel and a water tower, both conspicuous, are situated close E of the town.

6.10 The Rio Guadiana (37°10'N., 7°24'W.), 450 miles long, has its origin in Spain, but near the coast forms the boundary between Portugal and Spain.

The river is entered between Ponta da Areia (Ponta de Santa Antonio), which is flat and sandy, and the W side of Isla Canela, close E.

Sand banks and shoals extend up to 1.5 miles S of Isla Canela and 1 mile S of Ponta da Areia. A breakwater extends 2,100m SSE from Ponta da Areia and forms the W side of the entrance. Another breakwater, which is normally submerged, except during low spring tides, extends 1,600m SSE from the W extremity of Isla Canela to the NW end of Banco do O'Bril, a sand bank which dries, and forms the E side of the entrance. A channel, marked by buoys, leads over an entrance bar which extends up to 1 mile seaward. The depths across this bar and within the river are subject to constant change because of weather and current conditions. It was reported (1989) that there was a least depth of 2m on the bar and depths of 3 to 7m within the river channel. Vessels with drafts of up to 4.5m can cross the bar at HW. Navigation over the bar is permitted

during daylight hours only, and should be done only with a pilot.

The tidal currents at the entrance usually flow at rates up to 1.5 knots during the ebb and 1.2 knots during the flood. During the winter freshets, these rates greatly increase and discolored water may flow for a considerable distance seaward of the bar; entry should not be attempted at this time.

A light is shown from a tower with a dwelling, 46m high, standing close N of Ponta da Areia. A radiobeacon is situated at the light.

A tourist complex, with several prominent buildings, is situated on Isla Canela and a conspicuous tower stands on this island, 1.5 miles ENE of Ponta da Areia.

Vila Real de Santo Antonio (37°11'N., 7°25'W.), a resort town, is situated on the W bank of the Rio Guadiana, 2 miles above the entrance. The berthing facilities front the town and include a quay, 300m long, with a depth of 6m alongside, and a basin with a depth of 2m. They are used by small craft, fishing vessels, yachts, and local ferries. Entry should not be attempted without local knowledge.

Ayamonte (37°13'N., 7°24'W.), a small town, stands on the E bank of the river, 0.7 mile above Vila Real de Santo Antonio, in Spanish territory. The berthing facilities front the town and include a quay and a basin which have depths of 0.1 to 5m alongside. They are used by fishing vessels, small craft, and yachts.

A bridge, with a vertical clearance of 20m, spans the river, 1 mile N of Ayamonte. Pomarao, a former ore port, is situated on the W bank of the river, 23 miles above Ayamonte. It can be reached, on suitable tides, by small vessels with drafts less than 5m. This part of the river is mostly used by pleasure craft.

6.11 The Ria de La Higuera (37°11'N., 7°20'W.) flows into the sea 3.5 miles ENE of the Rio Guadiana. Its entrance is protected by breakwaters and lies between Punta de La Mojarra, the E end of Isla Canela, and Punta del Caiman, 0.5 mile NNE. The bar at the mouth is shallow and constantly shifting. The town of Villa de Isla Christina stands on the E side of the river, 0.5 mile N of the entrance. It is fronted by berthing facilities which are used exclusively by local fishing craft. Several high-rise buildings in the S part of the town are visible from seaward.

The **Rio de Las Piedras** (37°12'N., 7°05'W.) flows into the sea 12 miles E of the Ria de La Higuera. The coast between consists of a sandy beach backed by low, bare hills. A prominent tower stands on a reddish hill, 6.5 miles ENE of Punta del Caiman.

The river entrance lies between Punta del Gato and the mainland, close N. This point is the E end of a low spit which runs parallel to the coast for about 6 miles. The village of El Rompido stands on the N bank of the river, 2.5 miles within the entrance. A main light is shown from a tower, 29m high, standing at the village.

A shallow bar obstructs the entrance and is subject to constant change. Entry without local knowledge should not be attempted. The river is also shallow, but is navigable by small craft up to 7.5 miles above the mouth.

Caution.—Several submerged wellheads lie offshore in the waters S of the Rio de Las Piedras and may best be seen on the

chart. These structures may stand as much as 8m above the sea bed.

The Ria de Huelva

6.12 The Ria de Huelva (37°10'N., 6°56'W.), the estuary of the Rio Odiel and the Rio Tinto, lies 7 miles ESE of the entrance to the Rio de Las Piedras. The estuary is bounded to the SW by Isla Saltes, a swampy island, on which there are scrub-covered sandy ridges up to 3m high. It is bounded to the NE by the coast, which trends SE for 7 miles to Punta del Picacho.

Punta Umbria (37°11'N., 6°58'W.), the W entrance point of the river, lies S of Isla Saltes and is the outer extremity of a tongue of very low land which is almost completely covered by brush. Several buildings stand on the N side of the point and a breakwater extends 0.5 mile S from it. Canal de Punta Umbria, a shallow passage, leads between Punta Umbria and Isla Saltes and is used by local fishing boats and pleasure craft.

Punta del Picacho (37°08'N., 6°50'W.), the E entrance point of the river, lies 6.2 miles ESE of Punta Umbria and consists of sand covered by brush and stones.

A main light is shown from a prominent tower, with a dwelling, 25m high, standing on the point. A large marina is located close S of the light.

Dique de Juan Carlos I is a breakwater which has been constructed over the sand banks which extend about 7 miles SE from the S end of Isla Saltes. This breakwater has a total length of 11.5 miles and extends from the S part of the city along the S side of the river approach channel to a position 1.5 miles S of Punta del Picacho.

A main light is shown from a prominent tower, 27m high, standing on the head of the breakwater. A racon is situated at the light.



Punta del Picacho Light

Canal del Padre Santo, the main approach channel, is entered 1.5 miles S of Punta del Picacho and, after passing over the bar, continues NW to the estuary of the Ria de Huelva. Its seaward entrance is marked by a lighted buoy moored about 1 mile SSE of the head of the breakwater. The fairway over the bar is marked by lighted buoys and indicated by a lighted range, which may best be seen on the chart. Several beacons, which are used in connection with dredging operations, stand close NW of Punta del Picacho and are frequently moved.

Cerro del Puntal, 44m high, stands 1.3 miles NW of Punta del Picacho. This hill is pine-covered and can be identified from seaward, as it is one of the highest in the vicinity and is

surmounted by a watchtower. Its green summit contrasts sharply with its white slopes.

Punta de la Arenilla lies 5.5 miles NW of Cerro del Puntal. The shore between is low and sandy. A prominent oil refinery stands 3 miles NW of Cerro del Puntal.

Punta del Convento lies 0.3 mile ENE of Punta de la Arenilla. A conspicuous convent and a white marble monument, 48m high, stand close E of this point. The monument is generally the first object to be seen when approaching the coast and from any distance, it appears as a light tower.

The **Rio Tinto** (37°13'N., 6°56'W.), extending NE, is entered between Punta de La Arenilla and Punta del Sebo, 0.5 mile N. The mouth of the river is spanned by Puente del Tinto, a high road bridge with two passages for small craft. A prominent white-colored monument to Christopher Columbus, 50m high, stands on the S end of Punta del Sebo, close W of the bridge. The river is navigable by small craft at HW as far as Barillo, 9 miles above its mouth.



Christopher Columbus Monument

The village of Palos is situated on the S bank of this river, 2 miles above the bridge. Christopher Columbus sailed from this place on August 3, 1492 on his first voyage to the Americas.

The **Rio Odiel** (37°13'N., 6°56'W.) extends N from its confluence with the Rio Tinto at the S end of Punta del Sebo. Puente de Santa Eulalia spans the river 3.5 miles N of its mouth; above this bridge, the river is obstructed by banks of mud and sand.

Huelva (37°15'N., 6°57'W.)

World Port Index No. 38220

6.13 Puerto de Huelva, a well-protected commercial port, lies at the head of the Ria de Huelva, which is formed by the confluence of the Rio Odiel and the Rio Tinto.

Huelva Home Page

<http://www.puertohuelva.com>

Tides—Currents.—Tides at the bar rise 3.2m at springs and 2.5m at neaps. Tides in the port rise 3.5m at springs and 2.7m at neaps.

The tidal currents usually follow the course of the channel. Gales from seaward may increase the rise of tide and delay the time of HW; strong offshore winds have the opposite effect. The currents off the port area may attain rates up to 3.7 knots at springs and 1 knot at neaps.

Depths—Limitations.—The entrance bar was reported (1992) to have a dredged depth of 10m.

The port is divided into two basins. The inner basin extends N up the Rio Odiel from its junction with the Rio Tinto. The outer basin extends S from Punta de La Arenilla and fronts the refinery.

In general, vessels up to 180m long, with a maximum draft of 7.1m, can be accommodated in the inner basin while the outer basin can accommodate vessels up to 230m long, with a maximum draft of 10.7m. Details of berthing facilities are given in the accompanying table.

Huelva—Berth Information			
Berth	Length	Depth	Remarks
Inner Basin			
Levante	670m	7.0-8.0m	General cargo. Passengers.
Rio Tinto	390m	7.0m	Out of service.
Rhone Poulec	150m	4.0m	Bulk liquid.
Fosforico	120m	7.0m	Dry bulk and bulk liquid.
Abanos	120m	6.5m	Bulk liquid.
Foret	120m	9.5m	Bulk liquid. Maximum vessel draft of 7.5m.
Minas de Almagren	120m	9.5m	Bulk liquid. Maximum vessel size of 15,000 dwt.
EIASA (Aragonesas)	150m	8.0m	Dry bulk and bulk liquid.
Tharsis	320m	6.0m	Out of service.
Mooring buoys	—	3.3-6.5m	West side of basin.
Outer Basin			
Ing. Juan Gonzalo	902m	12.0m	General and bulk cargo.
Torre Arenillas Oil	560m	13.0m	General and bulk cargo.
Torre Arenillas Dry Bulk	465m	12.0m	
Saltes	299m	5.5m	Fitting-out facility
Reina Sofia	700m	8.0-9.5m	Bulk liquid.

Huelva—Berth Information			
Berth	Length	Depth	Remarks
ENAGAS	320m	6.0m	LNG. Maximum vessel size of 35,000 dwt.



Huelva—East Port



Huelva from SW

Huelva Offshore Oil Terminal (37°05'N., 6°55'W.) consists of an offshore SBM tanker berth situated in a depth of 21.3m, 5.5 miles SSE of Punta Umbria. A submarine oil pipeline, marked by lighted buoys, extends N and NNE from the berth to a refinery which is situated 5 miles NW of Punta del Picacho. Tankers of up to 153,000 dwt, with a maximum length of 288m and a maximum draft of 16.3m, have been accommodated.

Pilotage.—Pilotage is compulsory and is available 24 hours, with restrictions dependent on vessel draft. Vessels should send



Huelva—The Rio Odiel from N

an ETA 72 hours, 48 hours, and 24 hours in advance and a confirmation message 1 hour before arrival. Pilots may be contacted on VHF channel 6, 11, 12, 14, or 16 and generally board about 1 mile SSE of the head of the entrance lighted buoys. During bad weather, the pilot vessel will remain under the shelter of the banks.

Anchorage.—During good weather, vessels can obtain anchorage, in depths of 16 to 20m, outside the bar.

Caution.—In heavy weather, a sea breaks across the bar at about the time of HW and should be allowed for when entering.

All areas of the river and berths are subject to change due to heavy silting.

A restricted area, the limits of which are shown on the chart, lies in the vicinity of a submarine oil pipeline which crosses the river channel 3 miles below Punta de la Arenilla. Anchoring and trawling are prohibited within this area.

The Ria de Huelva to the Rio Guadalquivir

6.14 The coast between Punta del Picacho and Punta de Malandar, the N entrance point of the Rio Guadalquivir, 30 miles SE, consists of a sandy beach backed by sand dunes.

Playa de Mazagon, a narrow beach with a few fishing villages standing along it, extends between Punta del Picacho and Torre del Oro, 5.2 miles SE. Torre del Oro, in ruins, stands on a point of low land which is isolated at LW. A prominent white house stands close N of the ruins. Three conspicuous radio masts, the highest being 142m high, stand at the meteorological rocket launching site, 0.7 mile NW of the ruins.

The coast between Torre del Oro and Torre del Cabonero, about 15 miles SE, is backed by a chain of reddish-colored sand dunes which attain a height of almost 100m.

Torre de La Higuera, in ruins, is situated 9.2 miles SE of Torre del Oro. At LW, the ruins resemble a ship aground. A prominent white Guardia Civil Station stands on a hill 4.2 miles ESE of Torre de La Higuera and 1.2 miles inland.

A main light is shown from a prominent masonry tower, 24m high, standing close NW of Torre de la Higuera.

The prominent buildings of a town stand near the coast, 4 miles SE of Torre de la Higuera; Torre Carbonero, a large round tower, stands 2.5 miles SE of these buildings. Several small buildings are situated near this tower.



Huelva—Petroleum and Mineral Piers

The coast between Torre Carbonero and Punta de Malandar, 9.5 miles SSE, is low and backed by sand dunes; an extensive pine forest lies farther inland. Torre de Salabar, a tower surrounded by trees, stands 4 miles SE of Torre Carbonero, but is difficult to identify.

Caution.—Several wrecks, some dangerous, and a few well heads lie offshore along this stretch of coast and may best be seen on the chart.

The Rio Guadalquivir

6.15 The Rio Guadalquivir (36°47'N., 6°24'W.), 300 miles long, flows into the sea off the town of Sanlúcar de Barrameda. This river is navigable as far as the city of Sevilla, 54 miles above its mouth. The land in the vicinity of the river is low and level as far as Coria, 7 miles below Sevilla, but it then gradually rises in elevation towards the city.

Abra de Sanlúcar, known locally as Broa de Sanlúcar or simply La Broa, lies between Punta de Malandar and Punta del Perro, 4.7 miles SW. This broad and shallow estuary of the Rio Guadalquivir is encumbered by numerous shallow depths and shoals. In addition, drying banks front the shores and extend up to 0.5 mile seaward.

Punta del Perro (36°44'N., 6°26'W.), the S entrance point of the estuary, is low, rocky, and backed by sand dunes. A light is shown from a conspicuous tower on a building, 62m high, standing on the point. Santuario de Regla, a conspicuous building, and Casa Breva, a conspicuous white house with a tower, stand 0.5 mile S and 3.5 miles SE, respectively, of the light.

Bajo Salmedina, a drying reef, is the outermost danger of a bank which extends up to 1.5 miles W of Punta del Perro. The shallow passages lying between this reef and the point are used only by small craft with local knowledge; a ruined beacon stands on, and a stranded wreck lies close NW of, the reef.

Piedra Sietebranzas, a rocky bank with a depth of 4.1m, lies 1 mile N of Punta del Perro and breaks in heavy weather. Piedra Tesoro, a patch with a depth of 6.4m, lies close WNW of Piedra Sietebranzas.

Chipiona, a small village situated close E of Punta del Perro, can be identified by the conspicuous belfry tower of its church and its numerous white buildings. A marina fronts the village and is protected by a breakwater. Piedra Loreto, a rocky shoal with a depth of 0.2m, lies within the shore bank, 0.6 mile NE of the head of the breakwater.

6.16 Punta Malandar (36°48'N., 6°22'W.), the N entrance point of the estuary, is marked by the ruins of a tower and a building. Bajo Picacho, a drying reef with a stranded wreck on it, lies 2.6 miles WSW of the point. It is the outermost danger on the N side of the estuary and is marked by a lighted buoy moored about 1 mile W of it. Placer de San Jacinto, an extensive sandy and rocky shoal, lies centered 1 mile E of Bajo Picacho.

There is generally a dredged depth of about 6.5m over the bar. Vessels should contact the local authorities in advance for information concerning the latest depths.

The entrance channel, which leads over the bar and into the river, is entered 3 miles SW of Punta Malandar. Its seaward entrance is marked by an outer lighted buoy moored about 1.5

miles NNW of Punta del Perro. The fairway is marked by lighted buoys and indicated by a lighted range, which may best be seen on the chart.

Winds—Weather.—Gales from the W sometimes completely close the entrance channel over the bar to navigation. At such times, due to the uneven rocky bottom, seas frequently break seaward of Bajo Picacho.

Tides—Currents.—Tides at the bar rise 3.3m at springs and 2.5m at neaps. Tides at Sevilla rise 2.1m at springs and 1.8m at neaps.

Winds from the W may increase the rise of tide and delay the time of HW; winds from the E may have the opposite effect.

The tidal currents attain rates of up to 3 knots at springs and 1.5 knots at neaps. When the river is flooding, the flood currents decrease in velocity but the ebb currents sometimes attain rates of 5 to 6 knots and reddish-colored water may extend up to 5 miles seaward.

During a freshet, there are usually two currents on the bar during the flood, one running in along the S shore and the other constantly running out along the opposite shore.

Pilotage.—Pilotage is compulsory for all vessels of more than 500 grt. There are two classes of pilots for the Rio Guadalquivir. The bar pilots conduct vessels from sea to Bonanza (36°48'N., 6°20'W.); the river pilots conduct vessels from there upriver to Sevilla. Vessels should send an ETA at least 24 hours in advance, with any amendments up to 12 hours before arrival; the message should also include vessel length, beam, draft, air draft and maximum speed. The bar pilots are stationed at Chipiona; they can be contacted on VHF channel 12 and should be contacted 2 hours prior to arrival. Pilots generally board about 2 miles N of Punta del Perro, although in bad weather, they may not board until ships are in the vicinity of the outer lighted buoys marking the entrance channel, about 2.2 miles NE of Punta del Perro.

Regulations.—Navigation in the river above Bonanza is prohibited at night for tankers and other vessels carrying dangerous cargo.

Vessels with drafts greater than 6m are prohibited from leaving at night.

It is reported that pilots generally insist that vessels over 155m in length navigate only during daylight due to the bends in the river.

Vessels transiting the Rio Guadalquivir should maintain a continuous listening watch on VHF channel 12.

Above El Marmol (37°10'N., 6°07'W.) to Puerto de Sevilla, speed in the river is limited to a maximum of 10 knots.

Vessels may enter or leave the river starting 1.5 miles after LW.

Anchorage.—Anchorage can be taken seaward of the shoals which obstruct the estuary during good weather with offshore winds. There is good holding ground, in a depth of 11m, about 1.5 miles NW of Punta del Perro and, in depths of 6 to 9m, about 2 miles N of the same point.

Caution.—Depths on the bar and within the river are subject to change as a result of silting. The local authorities should be contacted for the latest information.

Several restricted areas, the limits of which are shown on the chart, lie in the N approaches to the estuary and extend up to 3.5 miles offshore. Anchoring and fishing are prohibited in these areas due to the presence of artificial reefs.

Overhead cables, with a minimum vertical clearance of 49m, span the river channel about 6 miles below Sevilla.

6.17 Bonanza (36°48'N., 6°20'W.), a small town and port for the city of Sanlúcar de Barrameda, is situated on the E bank of the river, 6.5 miles NE of Punta del Perro. Vessels stop here to obtain river pilots. Muelle de la Sanidad, the principal quay, is 242m long and has a depth of 4m alongside. It is protected by a detached breakwater, 250m long, with a depth of 5m along the inner side.

6.18 Puerto de Sevilla (37°22'N., 6°00'W.) (World Port Index No. 38270), situated in Canal de Alfonso XIII at the S side of the city, was formerly a part of the Rio Guadalquivir. It now consists of an extensive wet basin which is blocked at the N end and entered through a lock at the S end.

Depths—Limitations.—The river fairway has a navigable width of about 80m and is dredged to depths of 5.5 to 6.5m.

The lock is 200m long and 25m wide. The wet basin, which forms the port area, is 2.5 miles long and 82 to 110m wide, with depths of 6.5 to 8m.

The Centenario Bridge, a suspension bridge with a vertical clearance of 48.5m, crosses the basin at the N end of Darsena de Alfonso XIII. The Delicias Bridge, at the N end of Muelle de Tablada, is a swing bridge with a horizontal clearance of 40m and a vertical clearance in the closed position of 10.1m.

The lock is crossed by overhead power cables with a vertical clearance of 44m.

The main facilities include Muelle de Tablada, 1,122m long, with a depth of 7.5m alongside; Darsena del Centenario, which

has 1,450m of total berthing space, with a depth of 7.5m alongside; Muelle de las Delicias, 592m long, with a depth of 7.5m alongside; and Campsa Oil Terminal Berth, which has a depth of 7m alongside and can handle tankers up to 170m in length.

In addition, there are several small privately owned quays with depths of 7m alongside.

There are facilities for bulk, ro-ro, general cargo, tanker, and container vessels. The presence of overhead power cables and the dimensions of the lock limit the size of vessels. Generally, vessels up to 196m in length, 24m beam, 42m masthead height, and 6.5m draft can be accommodated.

The Rio Guadalquivir to Bahia de Cadiz

6.19 The coast between Punta del Perro and Punta Candor, 6.5 miles SSE, is backed by sand dunes and fringed by an area, with uneven depths of less than 10m, which extends up to 1.8 miles offshore. This section of the coast should be given a berth of at least 2.5 miles and vessels should stay in depths of 20m or more.

Punta Candor (36°38'N., 6°24'W.), a flat and sandy point, is fronted by drying reefs. Two conspicuous towers stand on the point.

Bajos Lainez, a group of shoals, extends between 1 mile and 1.8 miles W of the point and have a least depth of 6.1m at their outer edge. Gallardo, a detached rock with a depth of 9.3m, lies 1.7 miles WSW of the point. Several shoal patches, with depths of 8 to 9.5m, lie up to 2 miles SSW of the point and break in heavy weather.



Sevilla—The Delicias Bridge from N



Sevilla from S



Sevilla—Darsena del Batan and the Centenario Bridge

Bajo El Quemado, a detached 8.9m shoal patch, lies 2.5 miles S of Punta Candor and is marked by a lighted buoy moored close W.

An extensive area of rocky ground and shoal patches lies between Punta Candor and Punta de La Morena, 2 miles SE. Cabezo de Los Asnos, the outermost danger, lies about 1.3 miles SW of Punta de La Morena and has a least depth of 1.8m.

Caution.—An area, within which anchoring and fishing are prohibited due to submarine cables, extends seaward from a point on the coast 3 miles NNW of Punta Candor; this area may best be seen on the chart.

A measured distance, 2,958.75m, lies off this stretch of coast, close N of Punta Candor. It is indicated by beacons and may best be seen on the chart.



Sevilla—Muelle de Tablada from N



Sevilla and Muelle de Tablada from S

Naval and air exercises are frequently carried out in the waters off this stretch of coast.

Approaches to Bahia de Cadiz

6.20 Bahia de Cadiz ($36^{\circ}35'N.$, $6^{\circ}20'W.$) is entered between Punta de La Morena and Castillo de San Sebastian, 5.5 miles SSE. Rota Naval Base is situated on the N side of this bay, close inside the entrance. Puerto de Santa Maria lies at the head of the bay, on the N side. The long and narrow island of Isla de Leon, on which the city and port of Cadiz are situated, lies at the S side of the bay.

There are depths of 14 to 18m in the entrance and central part of the bay. However, the E side between Punta de Santa Catalina and the entrance to the Rio de San Pedro, 3 miles S, is obstructed by a large shoal which has depths of 5.5m and less over most of its area.

When approaching Cadiz in clear weather, the interior mountains will probably be the first land to be seen. Cabezo del Moro, 1,650m high and rounded, is the highest part of the Sierra de Ronda range and stands 45 miles ENE of Castillo de San Sebastian. Pico del Aljibe, 1,090m high, stands 33 miles E of the same castle and is very prominent. Medina Sidonia, sugarloaf-shaped and 337m high, stands 15 miles WSW of Pico del Aljibe. The tower standing close to its summit is prominent, and the town, situated on its W slope, appears as a conspicuous white patch.

Berrueco Grande ($36^{\circ}27'N.$, $6^{\circ}03'W.$), 175m high, stands 5.8 miles W of Medina Sidonia. This mountain is isolated, whitish-colored, and can be easily identified by its two summits, one of which is surmounted by a white building. Berrueco Chico stands close S of Berrueco Grande. The summit of this mountain is lower, but is more pointed.

Sierra de San Cristobal, a range of hills, rises from low level land, 4.2 miles ENE of Puerto de Santa Maria, and terminates SE in an abrupt vertical fall known as Morro de Jerez.

Punta de La Morena ($36^{\circ}37'N.$, $6^{\circ}21'W.$) is the S extremity of a small projection which forms the N entrance point of the bay. The town of Rota stands on this projection. A breakwater extends SE from the point and forms a small basin used by fishing boats and pleasure craft.

A main light (Rota) is shown from a tower, 28m high, standing on the point. A radiobeacon is situated 1.2 miles WNW of the light. An aeronautical light is shown from a conspicuous water tower, 49m high, standing 1.3 miles NNE of the light.

Bajo de Las Cabezuelas, with a least depth of 5.3m, is an extensive shoal which lies centered 1.5 miles SE of Punta de La Morena and is marked by a lighted buoy moored close SE of it. Numerous rocks and shoal depths lie between this shoal and the point.

6.21 Punta de Santa Catalina ($36^{\circ}35'N.$, $6^{\circ}16'W.$), steep and reddish in color, is located on the NE side of the bay, 4.7

miles ESE of Punta de La Morena. This point is fringed by a drying reef; the prominent ruins of a castle stand on it.

Castillo de San Sebastian (36°32'N., 6°19'W.), the S entrance point of the bay, stands on the S of two drying reefs which extend W from the N extremity of Isla Leon. This prominent castle is connected to the mainland by a causeway and a small cove lies between the drying reefs. A main light is shown from a prominent tower, 37m high, standing on the castle.

The NW end of Isla Leon, on which the city of Cadiz stands, is fringed on its S, W, and N sides by numerous dangers, foul ground, and depths of less than 10m, which extend up to 1.5 miles offshore. These dangers are marked on the W side by a lighted buoy, which is moored 1.2 miles WSW of the castle. This lighted buoy was reported (1990) to be off station.

Las Puercas, two large drying rocks, lie about 0.5 mile N of Punta Candelaria, the N extremity of Isla Leon. A beacon stands on these rocks.

El Diamante, a rocky shoal with a least depth of 4.7m, lies 1.1 miles NNE of Las Puercas. La Galera, another rocky shoal, with a least depth of 2.1m, lies 0.4 mile NE of El Diamante.

Canal del Sur, a narrow channel, leads into the bay between the N shore of Isla Leon and the dangers lying in the vicinity of Las Puercas. It is only used by small craft with local knowledge.

Canal del Norte, a secondary channel, leads between the NE shore of the bay and La Galera shoal. It is unmarked and has a least depth of 8m.

Canal Principal (36°34'N., 6°18'W.) is the main channel leading to the inner part of the bay. It passes between the shoals fronting the N shore of Isla Leon and El Diamante shoal. The fairway is 250m wide and is marked by lighted buoys.

Caution.—Vessels approaching the bay from S should give the shoals, which extend W from Castillo de San Sebastian, a wide berth, especially if a swell is observed in their vicinity.

A restricted anchorage area, the limits of which are shown on the chart, extends up to 1.5 miles S of the entrance to Rota Naval Base.

Occasionally, fog has been reported to form a very persistent bank across the whole of the entrance to the bay.

6.22 Rota Naval Fuel Depot (Rota Naval Base) (36°37'N., 6°19'W.) (World Port Index No. 38280) is situated on the N side of the bay, 1.5 miles E of the town. The depot is leased to the U. S. Navy and consists of an artificial harbor enclosed by two converging breakwaters.

Tides—Currents.—Tides rise 3.1m at springs and 2.4m at neaps.

It has been reported (1998) that tidal heights can change extremely quickly, with changes of as much as plus or minus 1m occurring within 5 minutes.

Depth—Limitations.—The entrance between the breakwater heads is 300m wide, but due to shoaling the navigable width is only about 250m.

Pier No. 1, situated on the inner side of the W breakwater, is 750m long and has charted depths of 10.5 to 11.9m alongside. Pier No. 2, a jetty, extends into the NW part of the harbor; it is 350m long and has charted depths of 8.9 to 10.5m alongside. Pier No. 3, a T-shaped tanker pier, extends into the NE part of

the harbor; it is 488m long and has depths of 9.4 to 10.5m alongside.

It has been reported (1998) that the basin has been dredged to 11m

Aspect.—Landmarks include a prominent church standing in the town, 0.5 mile N of Punta de La Morena; a prominent mast standing on the N side of the harbor, 0.4 mile NW of the root of the W breakwater; a conspicuous group of tanks standing N of the harbor; and La Inmaculada, a conspicuous building, standing on the NE shore of the bay, 1.8 miles SE of the root of the E breakwater, although it has been reported (1998) that new construction in the vicinity may obscure this building.

Lights are shown from the heads of each breakwater, and a lighted range, which may best be seen on the chart, indicates the entrance fairway. It is reported that this range can easily be identified by a large dish antenna which stands close W of the front structure. It has been reported (1998) that the range lights for entering the port are difficult to make out at night due to background lighting in the basin.

Pilotage.—Pilotage is compulsory for all merchant vessels. Pilots will board about 1 miles S of the entrance.

Merchant vessels bound for the Rota Naval Fuel Depot, or for Cadiz with cargo for the depot, are required to send an ETA 72 hours and 24 hours in advance, stating the nature and quantity of the cargo carried. If the ETA needs amending by more than 4 hours, an additional message must be sent. Radio-telephone contact should be made with Rota Control 6 hours prior to arrival.

Anchorage.—Vessels bound for Rota Naval Fuel Depot may anchor within the restricted anchorage area which extends up to 1.5 miles S of the harbor entrance.

Caution.—Care should be taken to avoid the shoals lying SSW of the harbor entrance and the shoal patches of 9.1m and 7.9m lying about 600m and 900m ESE, respectively, of the head of the W breakwater.

It is reported that shallower depths than charted have been found within the harbor.

Puerto de Santa Maria (36°36'N., 6°14'W.), a small port, is situated close NE of Puerto Sherry. It lies along the W bank of the Rio Guadalete, close within the entrance.

6.23 Puerto Sherry (36°35'N., 6°15'W.), an extensive recreation harbor, is situated at the E side of the bay, 0.7 mile E of Punta de Santa Catalina. It is protected by a breakwater and is used mainly by small craft. There are depths of 3.2m in the approach and 3.4m in the harbor.

Tides—Currents.—Tides rise 3.2m at springs and 2.6m at neaps.

Depths—Limitations.—Breakwaters extend 1 mile SW from the NW side of the river mouth and 275m SW from the SE side of the river mouth. The entrance channel formed between them is 80m wide and has a least depth of 5m (1990).

The main commercial quay is 774m long, with depths of 6 to 6.5m alongside. There are berths for fishing vessels and small craft situated upriver, with depths of 1 to 4.5m alongside. The harbor has facilities for bulk, ro-ro, tanker, and container vessels. Vessels up to 30,400 dwt, 171m in length, and 7m draft have been accommodated at HW.



Puerto de Santa Maria

Pilotage.—See Cadiz.

Anchorage.—Vessels can obtain anchorage, in depths of 6 to 7m, sand, between 0.2 and 0.5 mile SW of the head of the NW breakwater.

Cadiz (36°32'N., 6°18'W.)

World Port Index No. 38290

6.24 Cadiz, an important port, lies at the E side of the N end of Isla de Leon. It consists of a commercial harbor, situated adjacent to the city, and an international free zone harbor, situated 2 miles S of the city.

Cadiz Home Page

<http://www.puertocadiz.com>

Tides—Currents.—Tides rise 3.3m at springs and 2.5m at neaps.

The rise of tide within the bay may be greatly increased and the time of HW delayed by strong W winds; the opposite occurs with strong E winds.

The tidal currents usually follow the direction of the channel during both the flood and the ebb. The duration of the flood current increases with W winds, when it sometimes lasts for about 8 hours. In these circumstances, the ebb current lasts for about 4 hours. Within Canal Principal, the currents attain rates of 1.5 to 3 knots during springs and are weak during neaps.

Depths—Limitations.—The main entrance channel leading to the port was reported (1991) to be dredged to a depth of 13m to a position about 0.5 mile N of the head of Dique de San Felipe. From there, depths in the channel range from about 12

to 16m, except for a shoal patch of 10.5m lying about 0.2 mile W of Muelle Industrial.

An overhead cable spans the main channel close N of the free trade port area. It has a vertical clearance of 50m; vessels must ensure a minimum clearance of 3.62m beneath this cable.

The Jose Leon de Carranza Bridge spans the harbor channel close S of the international free zone harbor. It is a double bascule bridge with a passage for shipping, 90m wide, situated near the center. Outbound vessels passing through the bridge have priority over inbound vessels.

An overhead cable spans the channel close S of the bridge. It has a vertical clearance of 50m; vessels must ensure a minimum clearance of 2.96m beneath this cable.

The commercial harbor, which lies adjacent to the city, is protected by two breakwaters and has three basins at its head.

Darsena de Poniente, the NW basin, provides the principal berthing facilities. These include Muelle Reina Sofia, 600m long, with depths of 11 to 13m alongside; Muelle Alfonso XIII, 374m long, with a depth of 10m alongside; Muelle Ciudad (formerly Muelle Generalísimo Franco), 316m long, with a depth of 10m alongside; Muelles Reina Victoria, 220m long, with a depth of 10m alongside; and Marques de Comillas, 460m long, with a depth of 10m alongside.

There are facilities for general cargo, container, bulk, ro-ro, and passenger vessels.

The middle basin of this harbor has depths of 5 to 6m and is used almost exclusively by fishing vessels. The SE basin has depths of 7 to 9m and is used as the approach to a dry dock. Several berths, formed by a row of dolphins situated on the inner side of the SE breakwater, have depths of 8.5m and are used by vessels under repair or awaiting drydock.

A tank cleaning and gas freeing dolphin berth is situated on the E side of the SE breakwater, outside of the commercial



Cadiz from S



Cadiz—Free Port from W

harbor. It is connected to the breakwater by a catwalk and can handle tankers up to 400,000 dwt and 11m draft.

Muelle Industrial, a bulk terminal, is 500m long, with a depth of 13m alongside. It is situated in an industrial area on the E side of the port. It is reported (1992) that this terminal will be extended to provide berthing space for container and general cargo vessels.

The international free zone harbor is entered 2 miles S of the commercial harbor. It is sheltered from E winds by a breakwater, but is exposed to winds from other directions. The main facilities include Muelle de Poniente, 325m long, with a depth

of 9.5m alongside and Muelle de Ribera, 320m long, with a depth of 9.5m alongside.

The main channel in the upper harbor trends E from the bridge for 3 miles and leads between shallow flats to Arsenal de la Carraca, a naval base and dockyard. The fairway is marked by lighted buoys.

There are extensive facilities for shipbuilding and repairs within the port. At the W side of the harbor there is a drydock, 385m long and 66m wide, which is capable of handling vessels up to 400,000 dwt. At the E side of the harbor there is another large drydock, 525m long and 100m wide. This drydock is used for building and can handle vessels up to 1,000,000 dwt.



Cadiz—La Cabezuela

It is reported that a vessel of 390,364 dwt, 373m in length, and 12.8m draft has been accommodated within the port.

Aspect.—The city of Cadiz can readily be identified by its whitish appearance and its resemblance to an isolated island.

Conspicuous landmarks include the cathedral, with two towers and a dome, standing in the S part of the city, 1 mile E of Castillo de San Sebastian; a telecommunications tower, 118m high, standing 0.6 mile SE of the cathedral; the chimney of a power station situated 2 miles SE of the cathedral; and two pylons, 155m high, which carry a power line over the S part of the harbor channel in the vicinity of the power station.

Prominent landmarks include Torre de Tavira, 40m high, standing in the center of the city, 0.2 mile NW of the cathedral; the Jose Leon de Carranza Bridge, which spans the harbor channel 0.6 mile SE of the power station; an observatory, with a high tower, standing on a hill, 3.2 miles SE of the bridge; and the hospital building, which stands in the NW part of the city.

The entrance channels, which lead into the commercial harbor and the free trade port area, are indicated by lighted ranges which may best be seen on the chart.

Pilotage.—Pilotage is compulsory for all merchant vessels. Vessels should send an ETA message 6 to 8 hours in advance. Pilots can be contacted on VHF channel 11, 12, 14, or 16 and generally board 0.5 mile WNW of the entrance to Canal Principal, 2 miles N of Castillo de San Sebastian. Pilots for Puerto de Santa Maria are also available at this station.

Anchorage.—Vessels can obtain anchorage, in depths of 13 to 15m, muddy sand, about 1 mile W and NW of El Diamante shoal.

Caution.—An area, within which anchoring is prohibited due to the existence of submarine cables and obstructions, extends across the harbor channel and may best be seen on the chart.

Bahia de Cadiz to Cabo Trafalgar

6.25 The coast between Castillo de San Sebastian and Islote de Sancti Petri, 10 miles SSE, is formed by the W side of Isla de Leon. The city stands on its N part, but farther S, the land is low and sandy.

Torregorda, a conspicuous tower, 28m high, stands near a group of buildings, 5 miles SSE of Castillo de San Sebastian. Cerro de Los Martires, a group of barren hills, stands 2 miles SE of the tower. Several buildings and a hermitage are situated near the summit of the highest hill.

Bajos de Leon (36°29'N., 6°18'W.), an extensive shoal bank with a least depth of 3.9m, lies centered about 2.5 miles S of Castillo de San Sebastian. Placer de Los Martires, a long and narrow shoal bank, lies with its N end located about 2 miles SSE of Bajos de Leon. It has a least depth of 6.4m and extends about 3.5 miles SSE.

Caution.—An area, within which anchoring and fishing are prohibited due to the existence of submarine cables, extends W from the coast in the vicinity of Torregorda tower and may best be seen on the chart.

Explosive dumping areas, the limits of which are shown on the chart, lie centered 13 miles WSW and 30 miles SW of Castillo de San Sebastian.

An outfall pipeline extends 1.6 miles SW from a point on the coast, 1.9 miles NNW of Torregorda tower.

Occasionally, a floating target, with associated buoys, is moored 1 mile WSW of Torregorda tower.

6.26 Islote de Sancti Petri (36°23'N., 6°13'W.), a low and rugged islet, lies 0.7 mile S of the S extremity of Isla de Leon. A drying reef extends 1 mile N from this islet and a group of drying rocks lies close S of it.

A light is shown from a tower, 16m high, standing on the castle which is situated on the islet.

A chapel and the town of Chiclana are situated on Cerro de Santa Ana, 4 miles NE of Islote de Sancti Petri. Both the chapel and the town are conspicuous from seaward, as their white color contrasts with the green vegetation in the vicinity.

Cano de Sancti Petri (36°24'N., 6°12'W.) is a narrow, winding, and shallow channel which separates the S end of Isla de Leon from the mainland. The entrance is fronted by a bar over which there are depths of 1 to 3.8m. The channel is used by small craft and fishing boats with local knowledge.

The coast between Islote de Sancti Petri and Cabo Roche, 6.2 miles SSE, is bordered by a sandy beach along its S part. Torre Bermeja, a round tower, 9m high, stands 1.5 miles ESE of Islote de Sancti Petri. Torre del Puerco, a round tower in ruins, stands 2.3 miles NNE of Cabo Roche and Cerro de La Cabeza del Puerco, a 49m high hill, stands 0.5 mile NE of it. With E winds, vessels can anchor, in depths of 15 to 16m, about 1 mile off the above beach.

6.27 Cabo Roche (36°17'N., 6°08'W.) is formed by a low, steep, and reddish-colored cliff. A main light is shown from a tower, 20m high, standing on the cape.

Puerto de Conil, a small fishing harbor, lies close E of the cape and is protected by a breakwater.

A rocky shoal ridge, with depths of 3 to 11m, extends 3.7 miles SSE from a position 1.5 miles WSW of Islote de Sancti Petri. The shallowest parts of this ridge break in heavy seas. Depths of 20m lie about 0.5 mile W of this ridge and are usually marked by a heavy swell which breaks at times. Vessels are advised to give this area a wide berth.

Los Marrajos (36°19'N., 6°11'W.), a rocky bank, lies centered about 2.5 miles NW of Cabo Roche. Its shallowest parts have depths of less than 5m. La Pasada, a detached shoal with a depth of 7.9m, lies 4 miles NW of Cabo Roche and several other detached shoals, with depths of 7.2 to 9.5m, lie within 1.5 miles NW of it.

La Piedra que Revienta, a detached shoal with a depth of 3.7m, and Los Navios, a detached shoal with a depth of 7m, lie 3 miles W and 3 miles WSW, respectively, of Cabo Roche. Another detached shoal, with a depth of 6.3m, lies 0.8 mile WSW of Los Navios. All these shoals break in heavy weather.

Lajas de Cabo Roche (36°17'N., 6°09'W.), a group of shoals with depths of 3.7 to 11m, lies within 1.5 miles S and SW of Cabo Roche and is marked by breakers during a heavy sea.

Conil (36°18'N., 6°08'W.), a conspicuous village, is situated 2.8 miles SE of Cape Roche. The coast between is steep, rocky, and somewhat higher than the land in the vicinity of the cape. The village stands on the slope of a hill and is visible from a considerable distance seaward because of its white houses and windmills. La Atalaya, a prominent tower, stands close NW of the village and a conspicuous radio mast stands 0.5 mile inland, 0.8 mile NW of it.

Caution.—A restricted area, the limits of which are shown on the chart, lies centered 12 miles W of Cabo Roche. Anchoring and fishing are prohibited within this area.

An area, within which anchoring and fishing are prohibited due to the existence of submarine cables, extends seaward from the coast in the vicinity of Conil and may best be seen on the chart.

6.28 Torre Nueva (36°14'N., 6°04'W.), a conspicuous tower, stands 2.5 miles SSE of Conil on the only rocky point to be found along this section of the coast. Other towers are situated near the coast, but most are reported to be in ruins. A conspicuous building, known as Casa del Queso, stands near the coast, 1 mile SE of Torre Nueva. The coast between Torre Nueva and Cabo Trafalgar, 3.4 miles SSE, is low and sandy. It rises inland to Altos de Meca, a level hilly ridge, which extends NE from the cape. A group of windmills is situated at the NE extremity of this ridge at a height of 218m.

Lajas de Conil (36°13'N., 6°06'W.), a group of rocky shoals, is located on a bank which lies between 1 and 2 miles SW of Torre Nueva. La Laja, with a depth of 1.3m, is the shallowest shoal and lies on the N part of this bank. It breaks when there is the slightest sea. Cabezo de Patria, a rocky shoal with a depth of 4.2m, lies 2 miles WNW of Torre Nueva.

During E winds, vessels can obtain anchorage, in depths of 9 to 16m, anywhere off the coast between Torre Nueva and Cabo Trafalgar; however, if the wind shifts to the N or NW, vessels are advised to proceed to sea or to move to the anchorage lying E of the cape.

Cape Trafalgar (36°11'N., 6°02'W.), 20m high, is located 8.5 miles SE of Cabo Roche. A main light and a radiobeacon are situated at this cape; shoal banks lie up to 15 miles SW of the cape.

The cape and its off-lying dangers are fully described in Pub. 131, Sailing Directions (Enroute) Western Mediterranean.